

NOISE ENVIRONMENT

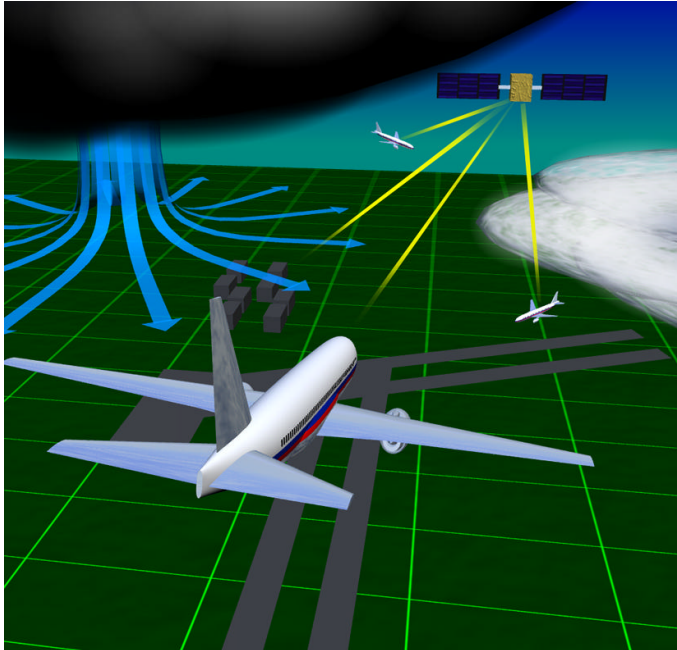
- **Pillar Goals**
- **Benefits**
- **Gap Analysis**

**David G. Stephens
Langley Research Center
May 19-21, 1998**

NOISE ENVIRONMENT

- **Pillar Goals**
 - **Definition**
 - **Graphic Model**

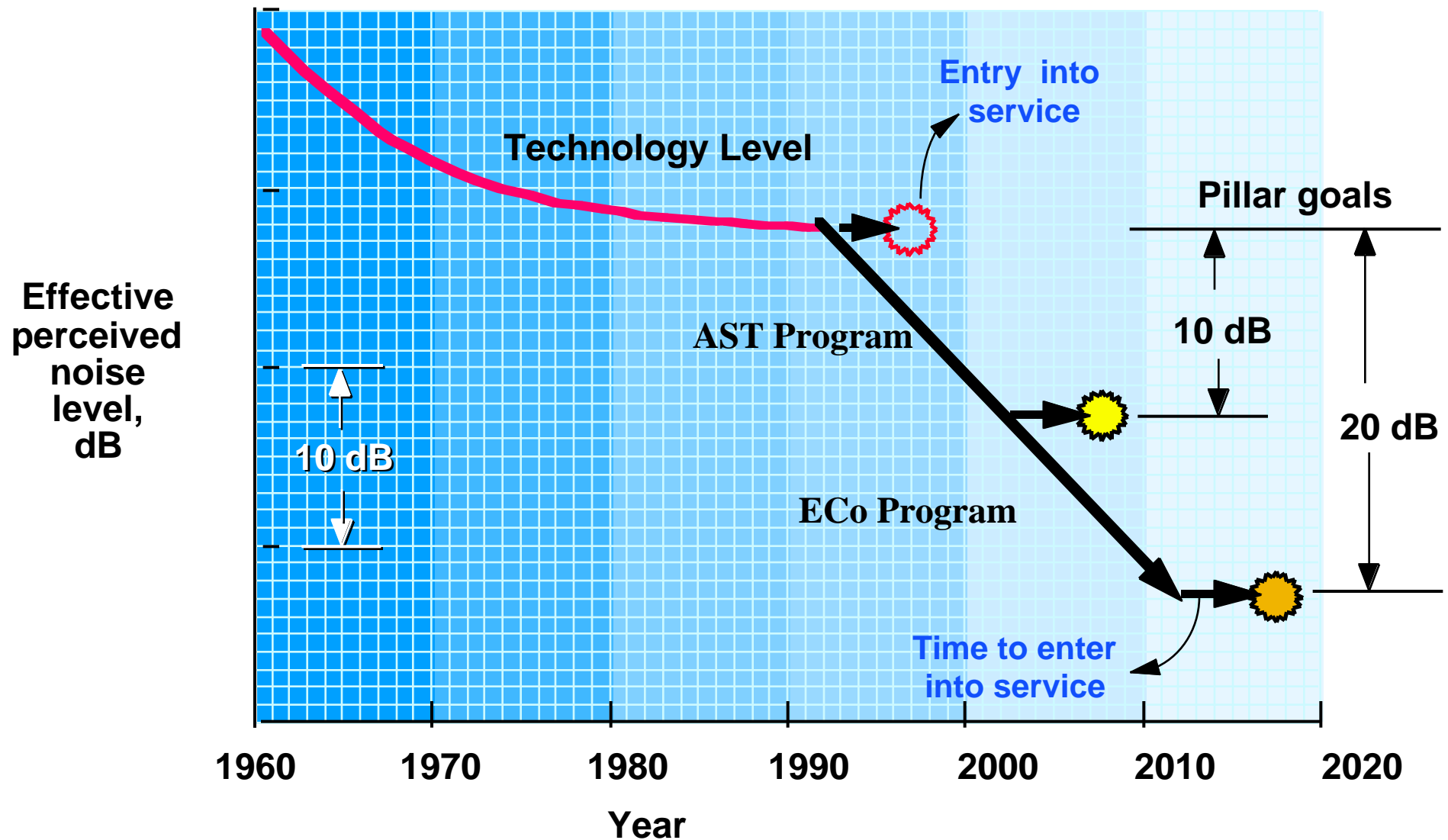
Goals for Pillar One *Global Civil Aviation*



Seamless integration of air travel into the fabric of society: easily accessible, easily utilized, safe, affordable travel with minimal environmental impact. Customer demands will drive air travel systems, service, and products

- ◆ Reduce the aircraft accident rate by a factor of five within 10 years, and by a factor of 10 within 20 years
- ◆ Reduce emissions of future aircraft by a factor of three within 10 years, and by a factor of five within 20 years
- ◆ Reduce the perceived noise levels of future aircraft by a factor of two from today's subsonic aircraft within 10 years, and by a factor of four within 20 years
- ◆ While maintaining safety, triple the aviation system throughput, in all weather conditions, within 10 years
- ◆ Reduce the cost of air travel by 25% within 10 years, and by 50% within 20 years

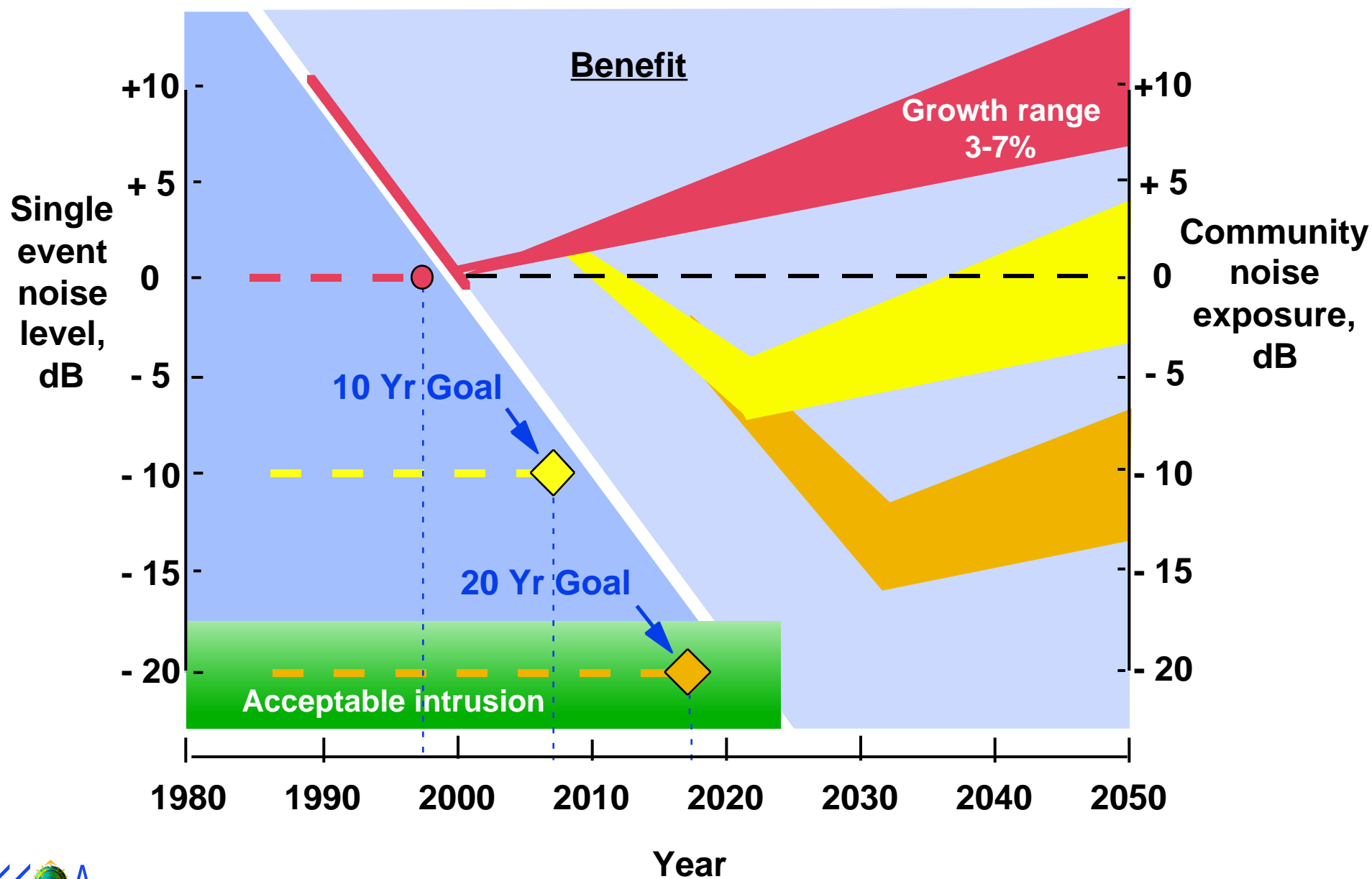
Global Civil Aviation Noise Goals



NOISE ENVIRONMENT

- **Benefits**
 - **Single Event Noise Level**
 - **Community Noise Exposure**
 - » **Growth Scenario**
 - » **Entry Into Service**

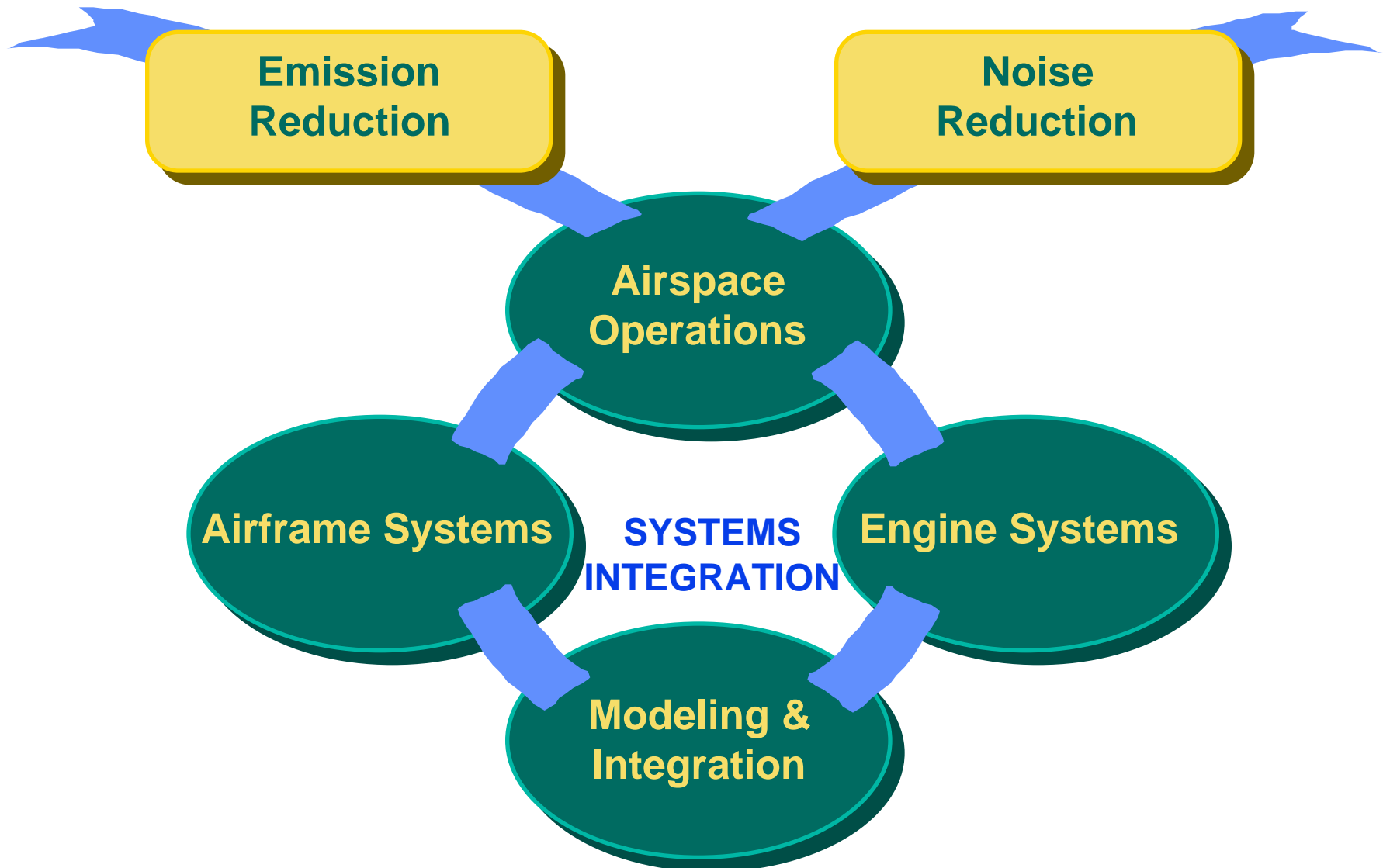
Aircraft Noise Reduction Benefit



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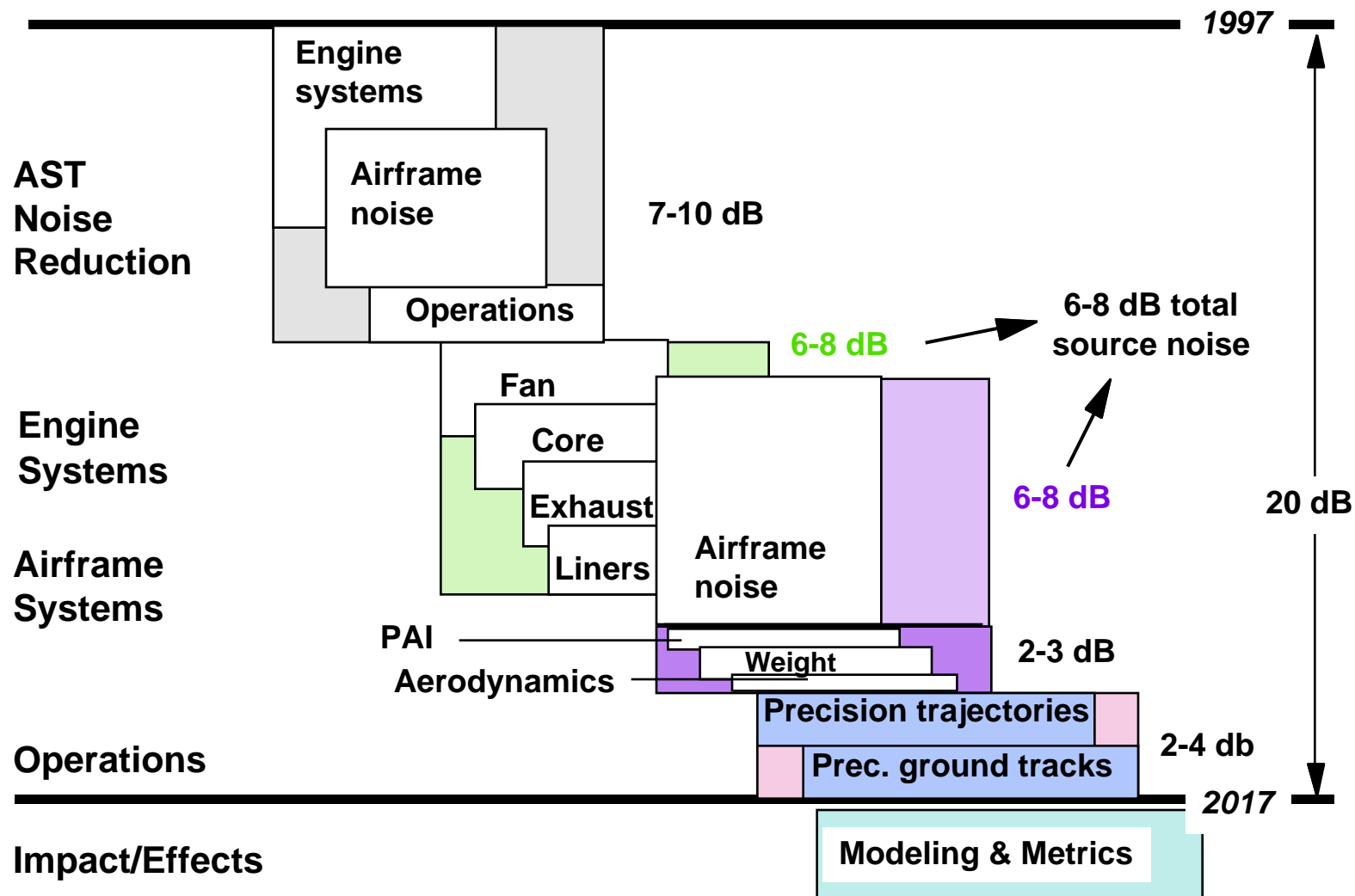
- **Gap Analysis**
 - **Requirements (goals)**
 - **Areas of Concentration**
 - **Potential Contributions**

PRINCIPAL ELEMENTS OF ENVIRONMENT PROGRAM





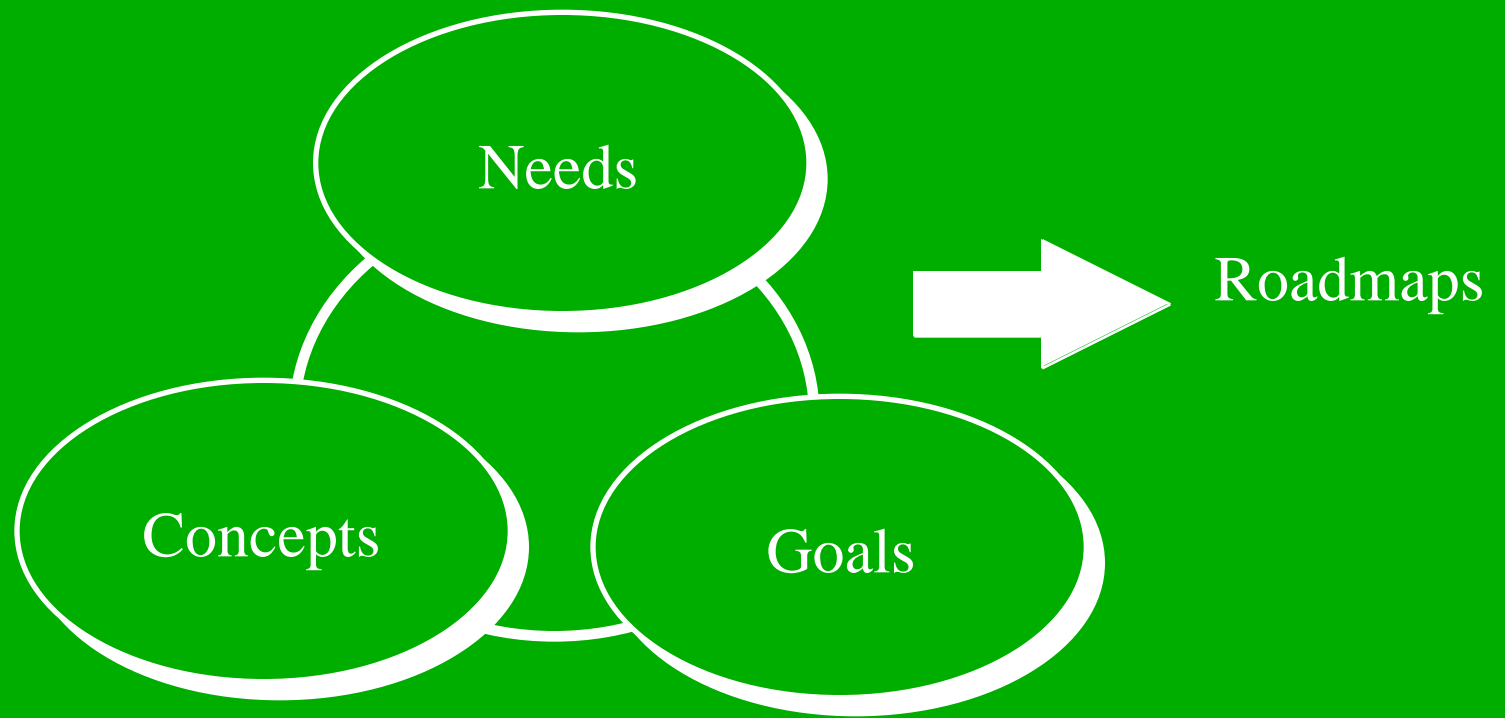
ENVIRONMENTAL PROGRAM NOISE REDUCTION WATERFALL



NOISE

- **Goal → Reduced Exposure**
- **Benefit → Dependent Upon Growth**
- **Gap → Revolutionary Airframe & Engines**

ECoA STRATEGY



Noise Sessions - Workshop #2 - Cleveland

Day 2

**Plenary
Noise and Emissions**

Roadmap Overview

**Wesoky
30 min.**

**Goals/Benefits/Gap Analysis
Noise**

**Stephens
30 min.**

**Goals/Benefits/Gap Analysis
Emissions**

**Rohde
30 min.**

**Plenary
Noise**

**Needs/Concepts/Goals
Noise Overview/Procedure**

**Dwoyer
15 min.**

**Breakout
Noise**

Engine/Airframe
Needs
Concepts
Roadmap

**Willshire/Huff
210 min.**

Ops/Modeling
Needs
Concepts
Roadmap

**Powell/Soderman
210 min.**

**Plenary
Noise**

Noise Report Out

**Willshire/Powell
60 min.**

Noise/Emissions Exchange

**Stephens/Rohde
30 min.**

Noise Summary

**Dwoyer
30 min.**

Notional Roadmap

DRAFT

Environmental Program

Revolutionary A/C
System Development

Revolutionary A/C
Component Develop

System Technology Programs

Fundamental Technologies Programs

FY97

FY02

FY07

FY12

FY17

5/15/98

NAR

2X Reduction
EIS

4X Reduction
EIS